THE
VETERINARY RECORD.

The Official Journal of the National Veterinary Medical Association of Great Britain and Ireland, Limited.

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 3. JANUARY 19, 1924. VOL. 4.

SIR STEWART STOCKMAN ON THE FOOT-AND-MOUTH DISEASE POSITION.

Address to the Council of the "National."

Sir Stewart Stockman, Chief Veterinary Adviser to the Ministry of Agriculture and Fisheries, paid a hurried visit to the meeting of the Council of the National Veterinary Medical Association (which was held at 10 Red Lion Square on January 9th) for the purpose of making a statement to the Veterinary Profession on the Ministry's efforts to cope with the present epidemic of foot-and-mouth disease and their future policy.

Sir Stewart, who was most enthusiastically received, made his statement prior to a discussion upon the following resolution, which was subsequently carried with unanimity: "That this Association supports the policy of the Ministry of Agriculture in dealing with outbreaks of foot-and-mouth disease in this country."

Sir STEWART STOCKMAN: I, as you are very well aware, have been exceedingly busy for the last few months, spending about fifteen hours a day at work in connection with the foot-and-mouth disease outbreaks, and when I was asked to come here I said I would do so if I possibly could. I made that statement merely to let you know that I could not possibly have prepared a statement in the form of a paper such as one might write for presentation to the Association. Such a thing is out of the question at present. We have to deal with outbreaks as they come along, and it is very difficult to get even a reasonable night's rest.

I think it might be of very great interest to you, gentlemen, to hear some of the history of what actually happened in this case. I was not prepared to make a statement for the public press. I wanted to speak to you more in confidence, as one professional man to another.

There is one thing about this outbreak which is entirely different from any other outbreak which I have ever tackled in England for the last nineteen years, and those of you who have read the paper which I wrote, in collaboration with Miss Garnett, for the Ministry's *Journal*, on the possibility of the bird being a carrier of infection to this country, would see that, up to 1922, all the initial outbreaks were confined to a definite area of Great Britain; nor did we ever get what we get in the case of anthrax, a distribution of the disease which corresponds to distribution of foodstuffs. Similarly, the human element, which we know plays a great part in the transmission of the disease, could not be incriminated in the case of these initial outbreaks, for the simple reason that human beings went everywhere, and those outbreaks were all in one area. We found also that a large number of these outbreaks took place on farms where no human being had been, except the ordinary farm people, their servants, and visitors had come from without the area. It was also said very freely that this country was subjected to the malicious spread of the disease—we put Scotland Yard on to this. There was no occasion, until this outbreak, for anyone to suggest that the evidence of distribution was such that it might have been malicious. The outbreaks which led to the suggestion in the first instance were all confined to certain districts, and the premises were so isolated that to my mind the theory was untenable in the sense that an outbreak there could do no great harm. At the present moment I do not in the least consider that malice plays any part, but it would for once have fitted in. What happened in this case was that we had all of a sudden something like twenty outbreaks, miles from each other, all at or about one time. They used up all our staff in a week or so, and we had to proceed to recruit outside men as quickly as possible. These outside men have come on in very large numbers, and they have done exceedingly fine work, but you must understand that when you get men quite new to the job you have to do a large amount of training. I can only speculate as to what extraordinary influence operated in this invasion.

I am inclined (and I put it forward purely as a speculation) to put it down to the fact that lately there has been an enormous spread of foot-and-mouth disease in the Argentine, and we have been getting a lot of foodstuffs from the Argentine. I venture to suggest only that our multiple invasion is due to some consignment of material dumped into this country from the Argentine or elsewhere. However, that is pure speculation for the purposes of investigation.

For the first time since I took service with the Ministry it is agreed that we should have a proper station for the investigation of foot-and-mouth disease, situated in some place where it is the least likely to do any damage. I have had all sorts of applications from outside to start stations. One man writes desiring to start a farm investigation, but desiring to do it near a port of importation, through which pass some hundreds of thousands of animals going all over the country. That would be madness.

It brings me, however, to the real start of this outbreak—the influence that has affected Cheshire. If we took every area affected, bar Cheshire and a part of Salop, I should have no anxiety in dealing with them, and I do not despair of Cheshire, but the difficulty in Cheshire is great; we had a number of animals at one of our ports. While they were in the port an outbreak occurred near Blackpool. A veterinary surgeon went over and diagnosed the case, and the next day there was an animal sick of milk fever in the port. It had done its quarantine. They called in the veterinary surgeon who, unfortunately, had been the day before at the outbreak of foot-and-mouth disease. He attended an animal, and in the ordinary course of things the animal went out to its destination. One of the lot, at least, arrived in the incubative stages of the disease. They passed over the railway dock, and, unfortunately, almost immediately after they had done so 1,000 sheep went over. A few days after this we knew what had happened—several of the animals, having reached their destination, went sick, and another veterinary surgeon was called in and informed us it was foot-and-mouth disease. We suspected at first that the disease came from Ireland, and stopped the Irish trade. The Irish authorities searched every farm in the district from which the cattle came, but they could not find any foot-and-mouth in the place. A very large number of the 1,000 sheep were distributed over the country, some going to Salop and Cheshire. We hunted them down, but to that little mistake I think we can attribute the outbreaks at Crewe and other parts. The Local Authority veterinary inspector forgot, or I believe he forgot, to publish an Order, as he should have done at once, restricting local movement over an area when he diagnosed the case at Crewe. It was market day, and Crewe market was distributed.

While we were in the middle of this trouble an extraordinary thing occurred. In all the twenty-two years that I have investigated this disease, and during which time I have had command of all the papers and reports, there has only once before been an initial outbreak in Scotland. For the second time it appeared in Scotland, at Paisley amongst pigs. There had not been a movement of men or animals from anywhere to the premises. There was a history of the obtaining of green vegetables and meal from abroad, but any connection with the outbreak on that account must be pure speculation for the time being.

This outbreak was not reported for ten days, and from that centre it was spread to many local premises, jumping even for about fifty miles, and then one hundred miles. People were tramping out and in and all over the country, and the result was we had a big crop of outbreaks before we knew where we were. The veterinary surgeon who was called in said it was not foot-and-mouth, but he did the right thing in going to the police and saying he was dealing with a peculiar disease.

The spread of the disease was really due to the outbreak being concealed by the owner himself.

To come really to Cheshire—that is the place which is giving us real concern. It has been a very difficult place to work. Cheshire is one of the most densely-stocked counties, so much so, that numbers of the stock have, for want of housing, to remain outside in the open, which greatly facilitates the spread of the disease. But I do not think anything helped more to spread disease as the recent election. Every policeman was then taken off for other duty, and people were tramping about in and out just as they liked. In spite of that, I do not think that the position in Cheshire is hopeless. But there has been one other factor, and that is the farmers and farm labourers themselves. It has been a very difficult thing to get farmers or their employees to stay at home. They have held meetings and rubbed shoulders, the contaminated with the clean.

The problem in Cheshire is a very, very difficult and a very, very sad one. You may have read a lot in the papers about acrimonious meetings. I do not think I ever met a class of men who have given me, in their awful trouble (and that is not over-emphasising their position) such a pleasant and courteous reception as the Cheshire farmers. (Cheers.) It has been most moving sometimes. I have never heard any serious expression against slaughter as a method. What they say is this: "We are afraid that we are losing so many cows that we shall be unable to replace them"—and they are possibly right, in many cases. Again, they say: "At the beginning of the outbreak you had our stock valued, and you paid us a very reasonable sum indeed. But now stock has gone up so much in value that, when we do come to buy, the compensation value is reduced to about two-thirds." They put it to me some time ago: Why do you not adopt isolation of certain herds? My reply was: "You can isolate, always supposing that you have suitable premises, can get the discipline amongst the farm servants and the farmers themselves, and if you have not got too many farms to be attended to by the police. But, unfortunately, they asked for something more. They say: "We cannot afford the expense of isolation; and what we mean by isolation and an attempt to save our cows is this—that if you decide on isolation, we are quite willing, but the Government must pay us the losses from deaths (and the deaths are not so few as people say); the Government must bear the expense of isolation, the same as regards milk, the expenses of disinfection, and that in regard to treatment." That seems simple at first sight. But the Diseases of Animals Act only contemplates compensation for animals which the Government take over for slaughter in the public interest, and to raise the matter of consequential losses is to raise the question of Government paying for trade losses, and it is an utter impossibility. We are now level, as it were, with the daily outbreaks. It is a race to stamp out the disease before we reach the figure at which everybody may have to admit that the price in blood (of cows) is too high to allow of the further pursuance of the slaughter policy in Cheshire. My hope is that that time will not arrive. (Hear, hear.) A great

deal of damage has been done; I do not think it is irreparable, but the question is one which merits the most serious consideration. It is one of high economic policy.

I thank Mr. Roberts for bringing this resolution forward, because its purpose is to try and give some support to the Ministry. But remember this, that the policy of slaughter is an excellent one, provided you have not got a better. We have only been driven to that policy because there is no better. If we do not succeed, the cattle trade of the country will be practically ruined for years, and our export trade will be enormously interfered with, not only as regards cattle, but also many other materials, as straw, hay and goods packed therewith.

These, then, are the very great difficulties which have arisen in Cheshire. I have brought here for you, as an easy way of making the position clear, a chart of Great Britain, divided up into Scotland, England as a whole, and the North Midlands area. When I pass these round you will see that in Scotland there is a falling crop of outbreaks. In England there is also a falling crop of outbreaks, but there is one very great rise at one part of the curve, which arose in a curious way. It is followed by a very distinct fall. Scotland has always blamed England as the source of infection, but for once, in this instance, Scotland paid us back very heavily, despite that there is now a falling crop of outbreaks in the district concerned. A farm in the North of Scotland sent some infected pigs to Newcastle, and that market resulted in about 120 outbreaks. The real anxiety, however, is Cheshire; we are disturbed, as the farmer is disturbed, by the number of cows that we have to slaughter. Nearly every herd in which we have now to deal consists almost entirely of cows.

If there is to be a discussion, I will try to remain for it, for perhaps I might be able to give you further information.

A further point about which I should like to speak is that we have obtained an enormous amount of advice in the papers and by letter. Of all people, I would be the last to say anything against the medical profession as a whole, because I was brought up with it professionally speaking; I was trained amongst medical scientists, and I have gained from them some of the most valuable training I have received from anybody; but I do think that some of the things that have come from some members of the medical profession in a public position are most inconsiderate and almost insulting. (Hear, hear.) I have always, ever since I engaged in research, carried on researches in harmonious co-operation with medical pathologists, and I have the highest opinion of them, but the people who are butting in are not these particular medical men. Here is a press article to which the Chairman has directed my attention. I have no time to read the papers, I have made no statements to newspaper representatives. I have never since the disease began, nor has any member of my staff, given a single interview to a press representative. We are too busy, and we do not want to be drawn into arguments with any Tom, Dick or Harry who likes to put them forward. A certain medical official, the writer of the article, came to the meeting at Chester, though it was none of his business, and addressed it. He said: "I am going to propose to the Ministry of Agriculture that they provide Veterinary Inspectors with wire cages in order that every bullock that is found wandering about should be tied up in a cage." (Loud laughter.) Then, when the meeting gave vent to its amusement, this individual actually remarked that he didn't know what they were laughing at! At another meeting I met a perfectly charming medical official who said he would like to be delegated to go to some of the premises, and offer suggestions as to what the veterinarian might do. He said that his public health experience might be of some use. I said to him: "Well and good, but let it be something practicable"; thereupon he continued: "I am also going to suggest that, instead of burning carcases in the open air, the men should carry about closed incinerators." (Laughter.)

I am in no sense closed to good suggestions, but, as often happens, the wrong men run to print when the lime-light is on. I will not weary you with further examples, except to say that much of the advice from medical press writers goes on the assumption that the virus enters by the feet, and that if you protect that channel of entry, you will prevent foot-and-mouth disease. Please do not misunderstand me, however, about the medical profession. It is like our own and other learned professions—the majority know too much to speak, the minority know too little to remain silent.

Before I sit down, I want to talk upon the question of research, because a similar class of man is pressing the Ministry of Agriculture to engage, with their assistance, of course, in research which will cost many thousands of pounds. They do not say what they are going to do, and the deduction is that if this will only be handed over, the problem will be solved. I have been engaged for a long time in research into foot-and-mouth disease. I have submitted material to the known methods of cultivation, and nothing has followed. I do not for one moment despair that we shall arrive at the cultivation of this and other filter passing viruses. Once that is done I should not hesitate to ask for £150,000, if necessary, from the Treasury for the application of any such discovery to foot-and-mouth disease.

In all the advice which has been sent in to us, I have seen nothing which bears upon the one point at which we should all be working. Every other aspect of the question, evidently, has been considered in some form. In regard to one of them—the disinfection of farms—to my mind, it is nonsense to say that you can go on to an ordinary farm and disinfect it properly, especially after foot-and-mouth disease, then put animals in immediately, as it were, and say there will be no more foot-and-mouth. What we do is to disinfect as thoroughly as possible. We use strong disinfectants, boiling water and, sometimes, even the flame, and, in addition, we give the premises a month or six weeks in which to effect natural purification. We know a great deal about the virus

and its ways, although we have not yet cultivated it in tubes. We know it is seldom that foot-and-mouth disease virus remains alive for more than six weeks. We also know, however, that it will remain alive (in circumstances not well understood) for some months. Under ordinary circumstances the virus seldom lives as long. If we could cultivate and say that it never, under any conditions, stayed alive for six weeks, or more, it would rule out that supposition that the disease was imported from distant countries, but it would not, of course, rule out the Continent.

No doubt every one here has read Professor Vallée's papers. Vallée has found out that there are two forms of virus producing exactly the same disease. He found that the unanimity produced against the one virus A did not protect against the other virus O. I had hoped, then, to decide origin by finding which type of virus is responsible for the outbreaks in this country. One prevails in Germany, the other in France, and this is being worked at with Vallée.

Our real expense in this slaughtering out business is incurred in slaughtering contacts, which you dare not have alive. Farms are difficult to disinfect—you cannot control people effectually, and there are various other methods of spreading the virus about. The only real way, therefore, is to stop the manufacture of virus. If it were possible to get every human being, animal and thing properly disinfected, we should do perfectly well with isolation. but it is an impossibility. If we had an immunising agent, one might still go on slaughtering the acutely affected; during that time we could disinfect the places where the virus had been manufactured and I have no hesitation in saying that a method of that kind would reduce our expenditure over a thousand-fold. That is what I think should be the line of research; however, we could immunise the contacts even for ten days.

Two German scientists claim to have cultivated the virus, the claims of one I have reason to believe are unfounded. The finding of a solution seems to be based mainly on being able to procure huge amounts of virus at will, without infecting animals. At least I can see no other way unless and until a new era of preventive medicine applicable to animals of the farm arises.

Most of you know the immunising methods which have been brought forward up to now give many failures, and to attempt a method which is not certain is tantamount to letting the disease run all over the country.

Gentlemen, although I want to say to you that this resolution is very helpful, I also want you to understand about slaughter that there might come a time, if a preventive agent is not found, and if the severity of the outbreaks continue unabated, when it is no longer worth the expense in blood and money to attempt to stamp out the disease by slaughter, there might come a time when the Cabinet might say: "You have spent enough money now, and we cannot afford more." The difficulty is to find out just when you should stop. We should not stop now, I am convinced. (Applause.)

Farmers, if they object to have their herds slaughtered, can delay matters in many ways and almost ruin the success of the policy, and if farmers will not go with us on the slaughter policy, I would rather not do it. I would rather resign my job than take the farmers by the throat, as it were, and it would fail.

The PRESIDENT moved a hearty vote of thanks to Sir Stewart Stockman for his kindness and courtesy in attending the meeting at so trying a time, for the purpose of explaining the position to them. He wished that every veterinary surgeon in the country could have heard that address. (Hear, hear.) He was quite certain that the sympathy of every one of them would be accorded in full measure to Sir Stewart in his stupendous task. (Applause.)

Colonel BRITTLEBANK, who seconded the motion, said that the meeting had been an exceptionally interesting one to him, as he had been very closely connected with the whole outbreak in Cheshire. To him, the most pleasant thing in Sir Stewart's address was the kindly way in which he had spoken of the Cheshire farmers. (Hear, hear.) A finer body of men did not exist in the British Isles. The way in which they had put up with their losses had elicited the admiration of every white man.

I want also, continued Colonel Brittlebank, to pay tribute to the self-sacrificing devotion of the men who are handling this outbreak on the spot. I have said, over and over again, that I would not have their job at any price. The bad weather conditions which they have had to work under would have been a trial of the strength and devotion to duty of any set of men. I hope that the profession will remain loyal to itself; we cannot condemn too severely the interference of outsiders.

Those of us who are tempted to think that the economic limit of a policy has been reached have not said so, but if we think so we must be pardoned when we think of the county which has lost something like 25 per cent. of its milking stock.

The position of the Veterinary Profession is probably as bad to-day as it has ever been in its history. The men in the profession in the north-west corner of England are regarded as wandering charlatans. We are accused of being incompetent. In the enquiry which I understand is to be held at the end of the epidemic I do hope that as far as possible any unfortunate mistakes that have been made by members of the profession will not receive undue publicity.

I feel sure that Sir Stewart Stockman will receive what I came here to say in the spirit in which I have said it, for he is, I know, only actuated by the very kindest motives to the profession. I congratulate him, and I do most earnestly hope, with him, that the epidemic may soon be at an end. (Applause.)

Major-General Sir L. J. BLENKINSOP: I cannot allow this meeting to pass without saying a few words about what has been done in this outbreak by Sir Stewart Stockman. When you begin to slaughter you have to make up your mind, as far as you can, that you are going on with it. I realise very fully

the extraordinarily difficult position in which he has been placed, as I have had experiences of a similar kind in India. Few of you can really appreciate the tremendous strain that Sir Stewart Stockman has been through.

Mr. COLEMAN also voiced his feelings of sympathy with Sir Stewart Stockman, and his thanks for the statement which had been made that afternoon.

Mr. LIVESEY informed the meeting of the readiness with which Sir Stewart had responded to his request that he might make some statement to them on the foot-and-mouth disease position, and added that, so far as the *Veterinary Record* was concerned, they would be most happy to put its columns at his disposal.

Professor WOOLDRIDGE hoped that the word "policy" in the resolution would be altered to "judgment," in accordance with that that had been passed by the Central Division.

Mr. TREVOR SPENCER supported the wording of the resolution.

The PRESIDENT: I really think that the two resolutions are very much the same, and that that of Mr. Roberts covers the resolution passed by the Central Division. I will, therefore, put Mr. Roberts' resolution to the meeting.

The resolution was carried unanimously, and with acclamation.

Sir STEWART STOCKMAN: I am very much obliged to you, gentlemen, for this support. I am sure that when I tell my staff at the Ministry, it will nerve them to go on. (Applause.)

It has, as I previously explained, been impossible for me with the time at my disposal to prepare an address such as might have been prepared in a paper, as it were, to a learned Society. I am aware that I have left many things unsaid which might be usefully discussed by our profession at large. I agree with what Col. Brittlebank has indicated, that while we as a profession ought to take serious and honest stock of our position and responsibility, and the way in which we are meeting that responsibility—thinking aloud to each other, as it were—such a proceeding is apt to be misunderstood by those outside our profession.

I would like to suggest that members of the Veterinary Profession, distributed all over the country, could, at times like these, give farmers instruction about such matters as general disinfection. They could also advise them, in times like these, to separate their stock into parcels, as it were, as far as possible, so that an invasion of their premises might not necessarily mean slaughter of all the stock thereon. Such a proceeding is not always possible on this or that farm, but it is possible on many, and would often save a large amount of stock which, under other conditions, the authorities are forced to slaughter.

At least one other point should be seriously considered: it is sometimes said that the Veterinary Inspectors themselves have carried infection from one place to another. The Veterinary Inspectors of the Ministry go about their work in long rubber boots and rubber overalls, many of them also wearing sou'westers. Such a kit lends itself to almost immediate disinfection, for the strongest disinfectants can be sprayed over them. These Inspectors have most definite instructions about disinfecting themselves before going from one place to another. Nevertheless, having regard to the number of Inspectors engaged, and the number of times they must come in contact with infection, I think it would be absurd to contend that in no case has infection ever been carried by a Veterinary Inspector. I can definitely say, however, that such cases, if they exist, can be very few. The odd cases, if they exist, are something which I am afraid we must accept.

Coming to the veterinary practitioner, however, I would like to point out that there are a few of them, and I must say that this has applied to some extent to Veterinary Inspectors of Local Authorities, whose business it often is to investigate cases of reported infectious disease, who make a practice from day to day, whether a disease like foot-and-mouth disease is in the country or not, of carrying in their cars or traps a proper overall kit, to wear when they are suddenly, and practically without warning, called upon to examine cases of disease suspected of being infectious. I venture to think that when a practitioner goes to a case, even if he is summoned off the road, as it were, by a client, he could easily enough, by questioning the owner before entering the place, obtain some idea of what is the matter, which will lead him to suspect that the trouble might be an infectious one, and that in such cases he could don his overalls. If you think for one moment that many men must find themselves in the position, after seeing a case of infection, of having to go to an urgent case elsewhere, one must be pardoned if one asks for an explanation of why ordinary precautions of this kind have not been the rule rather than the exception. Please do not misunderstand me, because I am addressing these remarks for consideration to the Veterinary Profession. They apply with equal force, or with very nearly equal force, to other professions, whose daily business may bring them in contact with contagious diseases. I doubt, for instance, if you put the question to medical practitioners: does a medical man never carry infectious disease from one patient to another? if you could get an answer entirely in the negative. I do say, however, that from the very nature of a veterinarian's work, and the conditions under which he must work, the risks of carrying certain diseases are greater.

Mr. George Bell, the New Zealand farmer, who recently completed in 84 hours the ride from York to London, a distance of 200 miles, on his Yorkshire-bred hunter, Yorkshire Boy, visited the Mansion House on Monday afternoon, and was received by the Lord Mayor, who complimented him. The horse, which has been in the Lord Mayor's stable since Saturday, was inspected, and looked fit and well. During the ride it was often difficult for the horse to keep his feet in the ice and snow on the roads.

Partial Isolation in Cheshire.

Concession to Farmers.

A *Times* correspondent, writing from Crewe on January 15th, says:

Important concessions to the Cheshire dairy farming interest in the matter of foot-and-mouth disease policy were announced this afternoon at a large meeting of farmers.

Mr. T. C. Goodwin, of Leighton Grange, Crewe, a member of the Standing Committee appointed to meet officials of the Ministry of Agriculture, stated that at the request of the Ministry he and three other representatives of the county (Mr. Henry Tollemache, of Dorfold Hall, Mr. J. Furber, and Mr. T. Bourne) went to London yesterday and had a further discussion with Sir Stewart Stockman. Sir Stewart put before them a policy of isolation which, while not giving all they asked, gave some help. What they had asked for (the option of being allowed to save their dairy cattle) was a privilege the owners of pedigree herds had not got at the present time, but Sir Stewart Stockman was prepared to give them equal privileges with the owners of the pedigree herds—that was, isolation in that particular part of the county (South Cheshire) where the officials of the Ministry considered, having regard to the state of the buildings and the position of the farm, that it was possible to isolate. That did not mean that everybody's stock would be saved if it contracted foot-and-mouth disease, but that wherever it was possible to carry out isolation and treatment it would be permitted, provided that they accepted the policy and agreed to it. Mr. Goodwin explained that there would be local isolation, confined to the farm or to as small an area as possible round it. Isolation could be just what they liked to make it, but they told Sir Stewart Stockman that the farmers would put up with the severest restrictions in order to save the cattle. Farmers need not be afraid of isolation. It need bring about little inconvenience, and it was not expensive. They could not afford to lose any more cattle in Cheshire, and what remained must be saved, in the national interest. Sir Stewart Stockman was most anxious to help them, and he himself suggested co-operative buying to prevent a price ramp.

In answer to questions Mr. Goodwin said the officials would decide the limits of the area in which the isolation policy would be permitted, and the suitability of any particular premises. All cattle that could be kept indoors might be treated, but heifers and any cattle that could not be put inside, and so would, if they got the disease, become a menace to the neighbouring herds, would still have to be slaughtered, with compensation.

A resolution was unanimously carried strongly approving of the policy outlined by Mr. Goodwin and agreed upon with Sir Stewart Stockman.

Poultry Diseases.

Inspection at Markets.

The Ministry of Agriculture, acting on representations from the Poultry Advisory Committee and the National Poultry Council, have sent a circular letter to all local authorities in Great Britain asking for their views as to the desirability of obtaining statutory powers for requiring the inspection of poultry at markets, and the practicability of enforcing such requirements.

At present the powers of the Ministry are limited to those contained in the Poultry Act, 1911, which enables the Minister to make Orders for the due protection of poultry from unnecessary suffering in connection with their exposure for sale and disposal after sale, and for requiring the cleansing and disinfecting of receptacles and vehicles. Legislation would, therefore, be required before an Order could be issued requiring the veterinary inspection of poultry at markets. The decision of the Ministry as to the action to be taken would appear to depend very largely on the attitude of the local authorities. No summary of replies is yet available, but as local willingness to co-operate would involve some expenditure, no very enthusiastic support of the proposal may be expected from those to whom the letter has been addressed. But there is no doubt that in drawing the attention of the Ministry to the danger of the spread of infection among poultry at markets, the representatives of the industry expressed a very real anxiety felt by competent observers.

Three years ago the extent to which disease was spread through the carelessness of unscrupulous dealers and others was the subject of comment in *The Times*, and it is no exaggeration to say that disease in all its aspects has now become the most important problem demanding attention. A year ago Mr. J. N. Leigh, the well-known director of the National Egg-laying Tests at Bentley, Suffolk, wrote that the most serious poultry diseases "give every indication of increasing virulence in type," adding that they might prove disastrous to the industry. It is significant of their very widespread character, even among the best kept flocks, that outbreaks occur, not infrequently, in pens of birds sent to laying tests, in spite of the close examination to which they are subjected on arrival.

The one satisfactory fact is the steady progress in research that is being made by Sir Stewart Stockman and his staff at the Ministry's Veterinary Laboratory, New Haw, Weybridge. Here work has been put in hand already in anticipation of the formal sanction of the scheme ofthe Poultry Institute, and some of the results of investigation are to be found in the specimens exhibited and the practical advice that is available at some of the bigger shows, as, for instance, at the recent Crystal Palace Meeting. But such promising work must necessarily be nullified to a great extent so long as it remains lawful for dealers and others to disseminate disease freely through markets and auctions. There would still remain as disease centres the premises of some dealers who advertise cheap stock, and these may be brought under control eventually. Meanwhile, the scandal of the open exposure in markets of fowls that are obviously diseased should be dealt with without delay.—*The Times.*

The Laboratory from the Veterinary Practitioner's Standpoint.*

By T. Dalling, M.R.C.V.S., Glasgow Veterinary College.

In deciding to make this—"The Laboratory from the Veterinary Practitioner's Standpoint"—the subject of my paper to the West of Scotland Division of the N.V.M.A., I do so because in some measure I feel competent to talk from the point of view both of the laboratory worker and of the practitioner, having had quite a considerable experience in laboratory work and in general practice. Though of late years one's work has largely been in the laboratory, there were times when formerly engaged in general practice that one was indeed glad to be able to consult with the laboratory worker and seek his opinion and advice on intricate problems.

The day is not so long distant when a veterinary practitioner was loath to make use of the laboratory worker, and when it was only after a considerable amount of self persuasion that he brought himself to the condition when he sought the latter's aid. Happily, to-day that state of affairs has materially improved, so that it is an everyday occurrence to have one's opinion asked on some more or less uncommon condition or on some outbreak of disease involving considerable loss. And not only is the laboratory worker consulted on uncommon or serious conditions; practitioners all over the country are asking for assistance in the prevention and treatment of some of the commoner everyday conditions, evidently being convinced that there is something which the laboratory worker can do to assist in such conditions which is to be preferred to the stereotyped methods.

The question naturally arises: "Why is the practitioner now seeking assistance from the laboratory worker when in the past there was little communication between them?"

It would appear that the answer is simple, and can be explained on the following lines: It is not so long since few veterinarians were available to undertake laboratory work—in fact, even at the present time there is a marked shortage, and thus for laboratory work in connection with the Veterinary Profession it was necessary to apply to allied professions. It can readily be realised that veterinary problems could not be adequately tackled by members of other professions, no matter how closely allied to the Veterinary Profession, and, therefore, it could not be expected that practitioners would take even a fair amount of interest in such work on animal diseases. Again, the fact that members of other professions were engaged on matters relating to animal diseases, without their first having had any preliminary training in such matters, led to a lack of interest being taken by the practitioner in any work done or its findings. Now, however, the profession has its own trained workers, men who have had the necessary preliminary training, men who can understand from a practitioner's standpoint the various animal disease problems, and men who are now devoting their whole time to disease questions in co-operation with the practitioner. At this point let me distinctly note that I do not want to convey a wrong impression. Though I hold that the trained veterinarian is the one who can best undertake work in the elucidation of animal disease questions, I quite realise and do not for a moment lose sight of the fact that an enormous amount of work relative to animal disease has been done by allied professions, and that the Veterinary Profession as a whole does owe a huge debt to such professions for the present state of our knowledge of many diseases. Moreover, though I hold that the veterinarian is best suited for such work, one can never lose sight of the fact that it is to our allied professions that we have had to look in the past, and must continue to look in the future, for guidance on many points in our study of disease. One can go even further, and unhesitatingly state that, though veterinarians are essentially qualified to look into and study veterinary problems, the best results will be got by a full co-operation with workers in the allied professions.

Now that the profession has trained men undertaking its own investigations, practitioners are naturally evincing more interest in the work they do, and, as their work brings forth fruit, so does that interest increase, so are all traces of suspicion and scepticism removed, and so is there more dependence on the laboratory worker for his assistance and advice.

The practitioner, then, seeks the aid of the laboratory worker, but little good could the latter do without the assistance of the former. The present-day laboratory worker probably realises more than his predecessor that his work would be of little account were it not for the interest the practitioner is taking and the support he is giving. It would be wellnigh impossible for any laboratory worker to continue were it not for the great co-operation between the practitioner and himself. Material to work on must be procured: who can procure it better than the practitioner who is in daily touch with the diseased condition? Study of the actual cases as they occur must be made: who is better able to supply such cases and to discuss them intelligently than the practitioner? Preparations made by the laboratory worker have to be tested and an opinion got as to their efficacy: who is in a better position than the practitioner to make these tests and to form opinions? Yes, surely the practitioner is the indispensable factor in the life of any laboratory worker, and the further one penetrates into the study of any disease, the more apparent does this become. It will only be by real, true co-operation that the best will accrue from investigations into disease, and it is with great pleasure that one is able to state that as far as one is personally concerned in laboratory work, nothing but co-operation in its true sense has ever existed between the practitioners with whom one has been associated and oneself. It is indeed gratifying to know and to

*Paper read at the West of Scotland Division Meeting, held at Glasgow on November 17th, 1923.

realise that the practitioner trusts the laboratory worker, and that the laboratory worker trusts and relies on the practitioner.

Every veterinarian cannot be a laboratory worker. Now that veterinary laboratory workers are definitely established, and have the confidence and support of the practitioner, it falls to them to retain that confidence and support.

Unfortunately, as in all professions, there are those in our own profession who by their work attempt to leave the impression that they are laboratory workers whose word on a point is final. Men to become laboratory workers must be temperamentally fitted for such work, must be prepared to undergo severe self training, must have long experience in such work before attempting to dictate, and must be prepared to sacrifice much to get results. It is unfortunate that some veterinarians rush into print with ideas on disease problems which even those with a minimum of training can condemn, and who further back up their ideas with bacteriological and pathological evidence which to an experienced laboratory worker conveys no impression that it bears any relationship to the disease in question. A few, however, do get a certain amount of following and show signs of being badly treated when one who is in a position to criticise points out wherein their theories are wrong and how their evidence cannot be accepted. It may be argued that every encouragement should be given to men who formulate theories, and that their theories should not be cast aside till well considered. One never for a moment would oppose such a suggestion, but surely when errors are pointed out by those in a position to do so, those who make the errors should be prepared to accept that finding. Again, there are two points on this matter to keep in mind :

(*a*) There are other professions who have our own profession under observation, and who read practically everything that appears in print by members of our profession. It is essentially necessary for the furtherance of veterinary laboratory work to show other allied professions that we are capable of carrying on our own work, and know how to go about it.

(*b*) Laboratory workers have gained the confidence of the practitioners; that confidence must be kept and it can only be kept by making as few mistakes as possible, by being sure of facts before sowing them broadcast by the press, by producing results which will benefit the practitioner, and by being able to substantiate any statements made by experimental proof. No matter how keen a man may be, he cannot engage in laboratory work with expectations of success without training and experience. The ideas he formulates may be right or wrong; training and experience alone will show which.

I feel now I have made it clear that the practitioner represents one special branch of the profession and the laboratory worker another special branch, that each has his own special knowledge and training to acquire, and that though each may have some knowledge of what the other is doing, yet each is a specialist in his own branch. Though for all practical purposes the branches are separate, yet there is much in common; each can be of almost indispensable value to the other, and a true co-operation must exist between the branches to get the maximum good from the whole.

Having dealt briefly with the practitioner's assistance, I will now deal with the assistance a laboratory worker can give the practitioner in everyday life.

The essential work of any laboratory worker is the research into the cause of disease and the evolution of some product with which to combat the disease either from a prophylactic or a curative standpoint. For many diseases this can be done, while in others it may only be possible to point out some practical method whereby a disease can be combated. Thus the end result of any veterinary research work is to be of value to the practitioner. Apart from this essential part in the life of laboratory workers, there are many directions in which they can be of assistance to the practitioner. These are tabulated as follows :

(A) *Diagnosis.*
- I. Bacteriological.
- II. Histological.
- III. General.

(B) *Vaccine work.*
- (a) Curative :
  - I. Autogenous.
  - II. Polyvalent mixed.
- (b) Preventive :
  - I. Autogenous.
  - II. Polyvalent mixed.

(C) *Consultations on cases or outbreaks of disease.*

In dealing with each of the above, as far as possible actual cases that have occurred will be dealt with.

Diagnosis.

In much of his work the practitioner can derive little assistance from the laboratory worker, but where special work is involved, including the use of the microscope, cultural work, blood work, etc., the practitioner has often to appeal to the laboratory worker, who because of his special training and experience, and because of the appliances he has at hand, can often clear up a doubtful point.

Bacteriological Examinations.

It is often essential that the nature of an infection be diagnosed in order to facilitate the decision of a line of treatment. Though much of this work can be done by the practitioner himself, yet confirmation is often necessary by an expert. The character of wound infections, discharges, secretions, etc., can be shown and special treatment advocated. The diagnosis of the presence of *B. tuberculosis* in milk is one of the important points where assistance can be given. It is not always an easy task to demonstrate the presence of these organisms, and though many practitioners can and do the microscopic examination, it often falls to the lot of the laboratory worker to make the examination. Such examinations often follow the fact that a milk cow has reacted to the subcutaneous test but shows no clinical lesions. The sample of milk forwarded for examination should

be carefully and sterilely taken, and as far as possible the last part of the udder secretion included. One never gives a definite diagnosis on microscopic examination alone: an animal inoculation is usually included in the test, the guinea-pig being used, and three or four weeks elapsing before the examination is completed and a definite diagnosis given.

While dealing with *B. tuberculosis*, let me quote an interesting case that came under our observation. Mr. Mason, M.R.C.V.S., had a cat suffering from abscess formation in the region of the head, from which smears showed the presence of *B. tuberculosis*. A sample of the discharge was inoculated subcutaneously into a guinea-pig, and death occurred in exactly fourteen days following the inoculation. Generalised tuberculosis was seen on *post-mortem* of the guinea-pig, thus showing that in all probability the infection was of bovine origin.

The laboratory worker is of some considerable service in the diagnosis of the presence of anti-bodies of the *B. abortus* (Bang) in cattle. This is essentially a laboratory piece of work when the agglutination test has to be performed. Certainly an opinion can be got from an examination of the uterine discharge from a cow which has aborted with the presence of absence of clumps of gram-negative organisms, but in a non-pregnant or pregnant cow showing no evidence of abortion, the agglutination test alone can be applied. The collection of blood is the practitioner's part. A few c.c.—say 5 c.c.—is ample for the purpose. It is always well to allow the blood to clot thoroughly after being drawn before moving, in order to prevent hæmolysis, which interferes considerably with the test. A slide smear with blood or a swab soaked in blood are of no use—the actual blood itself must be obtained. It is usual to obtain the blood from the external jugular vein, though Dr. Whitehouse has pointed out that use may be made of the point where the milk vein penetrates the abdominal wall (the milk well). After the test has been carried out, the result is expressed that agglutination occurred in serum so many times diluted with saline, e.g., 1 in 100. Such is said to be the titre. Though it is not the laboratory worker's part to go further than give the result in such terms, it may not be out of place to remark that even reaction at an extremely low titre should be regarded with suspicion. To show the significance of this remark, let me quote a case. A herd of pedigreed red polls had one cow which aborted, and whose serum reacted to the agglutination test at 1 in 30. The remainder of the herd were submitted to agglutination tests, and several more were found to react, while one, a Jersey cow, gave a reaction at 1 in 40 only. Abortions took place at intervals, and a record test done some months later showed this Jersey cow to react at the same dilution. The owner was at a loss to know how infection had appeared in his herd, as all had been in his possession for years. On enquiring fully into the history of the Jersey cow, the fact was brought out that there had been considerable difficulty in getting her to hold to the bull. On further enquiry it was practically certain that she had aborted before being bought by the present owner, and in all probability it was the Jersey cow, though showing agglutination reaction only in a strong dilution of serum, which had acted as the carrier and spread infection to the herd. This outbreak was studied in association with Mr. Andrew Robb, M.R.C.V.S., Glasgow.

Histological Examinations.

It is comparatively rarely that laboratory workers are asked to diagnose conditions by histological methods, so at times such examinations are valuable to the practitioner. The nature of tumours can be told, and from such knowledge the treatment or destruction of the animal advised. When any tissue is sent for histological diagnosis, it is well to send it in a fixed condition, i.e., soaked in 5-10 per cent. formalin. An interesting case came under our observation. Mr. L., a veterinary surgeon, had removed a growth from between the digits of a bullock, but a new growth quickly followed. A piece of this new growth was got for diagnosis, and the examination of a section showed the condition to be actinomycosis. Thus the practitioner was in a position to alter his treatment, when recovery followed.

General Examinations.

Under this heading, parasites mostly come in for consideration. The diagnosis of mange mites in horses, sheep, etc., is an important point, and in cases of doubt the opinion of the laboratory worker is often sought. Unfortunately all practitioners do not send equally good samples for diagnosis. It is essential to include the parasite, if present in the sample, and therefore to send a deepish scraping of the skin, especially if sarcoptes are suspected. The presence or absence of intestinal parasites is of importance in disease, and cases have been dealt with where serious disease has ensued from their infestation. Especially is this true in sheep, goats and fowls. It is often necessary to adopt microscopic and other laboratory methods for their demonstration, so very small are the parasites, and thus such work is essentially that of the laboratory worker.

Bacteriological examinations are never satisfactory if dead animals are dealt with, so in order to assist the laboratory worker in his findings, well-marked live cases should be submitted. Even in histological work, only gross lesions can be definitely diagnosed as produced during the course of a disease if the tissues are procured after the death of the subject.

Vaccine Work.

Much useful work can be done by the administration of vaccines in the prevention and cure of disease. Vaccines used in the prevention of contagions, where they have been found to be beneficial, are issued largely by commercial firms, and in general are reliable, e.g., Black Quarter vaccine. But there are many individual cases in which vaccines are beneficial, vaccines the making of which is carried out by laboratory workers; it is more to that type that reference is made here.

Curative Vaccines.

It is generally acknowledged that for curative purposes vaccines give best results when made on chronic cases. There is, however, some evidence to show that benefit may be derived from their administration in certain acute conditions.

Vaccines are divided into autogenous and polyvalent, i.e., vaccines made from organisms actually found present in the diseased condition being treated, and vaccines made from organisms found in a number of cases similar to the one under consideration. Without any doubt the best results are got by the use of autogenous vaccines, though, again, examples can be given where polyvalent vaccine administration was followed by improvement and recovery. In order that a polyvalent vaccine be of material use, it is necessary that it be made from organisms isolated from a considerable number of cases for which it is being used, e.g., a polyvalent vaccine for wound treatment must be made from organisms derived from all types of wounds and from different areas. The whole idea of polyvalent vaccine administration is that the substance inoculated may be made from similar strains of organisms to that found in the condition under treatment. Provided that the polyvalent vaccine has been made from similar strains, it is highly probable that good will be derived from its use. It would appear that one strain of an organism bears little or no relationship to another strain from a vaccine point of view, though in the case of streptococci it is believed that vaccines made from one strain will have beneficial effect when used in a condition due to a different strain. It will thus be apparent that whenever possible the autogenous type of vaccine should be made use of. Polyvalent vaccines are useful in cases where time does not allow of the making of an autogenous one, and they may be substituted for the autogenous one till it is procured.

It may not be out of place here to draw attention to the procuring of material for vaccine manufacture. Extraneous infection must at all costs be excluded and only the actual organisms present in the lesion or discharge submitted. If surface contamination has occurred, it is extremely probable that such organisms will be made use of in the vaccine making to some extent, and, bearing no relationship to the disease, can play no part in its cure. This may account for some of the apparent failures in vaccine treatment. In order to obtain a true sample of discharge, etc., it is necessary to prepare the part, e.g., if the lesion be a wound, it is necessary to cleanse it with sterile normal saline solution and cover it up if possible with sterile dressings, no antiseptics being used, the sample for examination being taken a few hours later, or even the next day. The greatest care must be observed in the taking of the sample so that the swab, etc., employed is not itself contaminated. In the case of a sample of milk being required, it should be taken as early in the course of the disease as possible, and only after the teat, hands, etc., have been sterilised and the milk duct emptied to remove any organismal contamination there.

The following are given as examples of the use of autogenous vaccines. Mr. A., a veterinary surgeon, asked for advice in the treatment of a toy dog suffering from anal abscesses. The history of the case showed that the condition had been present for over a year, and despite surgical and medical treatment, little or no improvement was obtained. After carefully carrying out instructions as to collection of material, a swab was received from which a pure culture of a *B. coli* type of organism was secured. An autogenous vaccine was prepared and used. Mr. A. wrote the other day, nearly five months after the vaccine was issued: "I carried out your instructions, and after the sixth injection the discharge gradually stopped, and within ten days of the last one the wounds were closed . . . I saw him the other day, and the lady told me it had marvellous results."

Mr. T., a veterinary surgeon, sought advice on a cat which showed abscess formation in the region of the thyroid gland. The abscesses were spreading up to the face, and necrotic masses of skin, etc., were being sloughed off. A sample of the discharge was obtained from which a mixed streptococcic and staphylococcic vaccine was made. After the full course of treatment recovery was noted, but a few further doses were applied, which gave complete recovery.

It sometimes happens that after a course of vaccine treatment recovery is apparent, to be followed by a recurrence. This may be due to invasion by a second organism. To illustrate this point, let me quote a case of a valuable Clydesdale foal suffering from abscess formation, with persistent discharge from the neighbourhood of a hip joint. Mr. F., a veterinary surgeon, asked our assistance, showing how surgical and medical treatment had failed. Vaccine treatment was agreed on, and a pure streptococcic infection diagnosed. An autogenous vaccine was administered with marked beneficial results, but soon the discharge became copious again and altered in character. Further examination of the discharge showed that the streptococcus had entirely gone, and that its place had been taken by a short bacillus. A second vaccine was made, using the bacillus, and an uninterrupted recovery was obtained.

It was shown beyond any doubt during the war that beneficial effect could be got by the judicious use of vaccines in acute respiratory conditions, and in post-war days their use in acute conditions has in some instances been followed by rapid recovery. The following is one example. A valuable shorthorn cow in full milk suddenly developed mammitis in one hind quarter. Mr. S., a veterinary surgeon, was in attendance, and asked for an autogenous vaccine. Before it could be prepared the other hind quarter and one fore quarter were involved. Vaccine treatment was then carried out, resulting in complete recovery of one hind and one fore quarter.

When on the subject of vaccines, it may not be out of place to refer to the use of the Reading bacillus, coupled with vaccine treatment and alone. During the war the use of this treatment was shown, and the

results obtained made its use general in many hospitals. It has always been a matter of surprise to me that its use has not been more universal of late years, for those who still continue with it speak highly of its efficacy, and when coupled with autogenous vaccine treatment in suitable cases, it would appear to give better results than any other form of treatment. Wounds in which drainage is difficult or impossible are cases in which its use is advocated. The following cases have come under my observation in association with Major A. Robb, Glasgow :—

1. The first case in which Reading bacillus treatment showed its wonderful effects was at No. 2 Veterinary Hospital, France, the subject being a gelding with a shrapnel wound in the lumbar region. This case had been six weeks under treatment prior to coming under Major Robb's investigation. The horse was cast and chloroformed, the wound opened up, and a piece of shrapnel removed from the region of the transverse process of one of the lumbar vertebræ. A cavity was left fully eight inches deep. Drainage here was impossible. In two days after a preliminary dressing with sterile saline, the animal was cast again, and the Reading bacillus sown and the wound packed. Five days later the packing was removed, when a wound only three inches deep was found with little discharge. In one month the case was discharged cured.
2. A horse, the property of Messrs. C. and Co., had an old-standing quittor. Two days after the Perrier operation the Reading treatment was applied. Masses of dead tissue were sloughed out on the dressings being removed seven days later. An uneventful recovery was obtained.
3. Bay gelding, property of Messrs. A. and J. M. This horse had a corn on the inside heel of a fore foot. He was very difficult to dress, and stocks had to be used. The inside wall of the hoof was stripped, the lesion healed, and the horse was back at work. Three months later a quittor formed well back. Perrier's operation was performed, but only the posterior part of the cartilage was removed. The wound did well, but three weeks later lameness occurred, with discharge from the anterior end of the wound. It was decided to operate again, when a new wound was made anteriorly, and part of the wing of the os pedis removed. Two days later the Reading treatment was applied. When the dressings were removed in seven days the horse was sound, and in one month the wound had completely closed.
4. Black gelding, the property of Mr. H. This horse received a severe kick along the left side of the thorax, one rib being fractured. A sinus was found, which when probed ran forward about eight inches. A continuous discharge had come from this sinus for about six months. The horse was operated on, and a wound made along the rib tracing the path of the sinus till it became dangerous to go further. The wound was plugged, and in two days treated with Reading Culture. Before the operation a sample of discharge was got and an autogenous vaccine made. The vaccine and Reading treatment were carried out simultaneously. In fourteen days after the last inoculation the wound had closed, and at that time the horse had been working for a week.
5. A roan mare, property of Mr. R. This was an old-standing injury to the sternum, and had been operated on at least twice before Major Robb saw it. Pronounced fibrous thickening existed around the injury. A longitudinal incision was made revealing a small sinus leading into the body of the sternum. This was curetted as well as possible. Reading bacillus was used and a vaccine from a staphylococcus made. The further dressing was sterile saline only. This mare was working in five weeks. Nine months later a swelling occurred about six inches posterior to the original wound. Abscess formation occurred, a streptococcus was found, an autogenous vaccine made and used, and recovery was uneventful. It is now nearly three years since this case was treated, and the mare is still normal.

As an example of the use of polyvalent vaccine for curative purposes, that for canine interdigital abscesses can be taken. Investigation has shown that this condition is usually associated with the presence of cocci of various varieties in the abscesses. Polyvalent vaccines made from organisms isolated from many cases have been used largely, and the consensus of opinion is that they are beneficial but not infallible. Recent cases apparently do best, though chronic cases also derive some benefit. In the majority of cases a rapid healing is got, but when vaccine treatment is discontinued a recurrence may be found. To obviate this complication we have had the co-operation of Mr. Sommerville, Clarkston, who does not discontinue the treatment at once, but who so arranges with his client that a monthly inoculation be given for several months. He states that in all cases so treated no recurrence has been known.

Vaccines as Preventatives.

There are some diseases where the laboratory worker can be of use to the practitioner in the making of vaccines for their prevention. Two conditions—mammitis and strangles—will be referred to here.

1. *Mammitis.*—One has been able to show clearly that the cause of mammitis is practically always a streptococcus, although if time elapses between the onset of the disease and the obtaining of the sample for examination, other organisms may be found. Thus in thirty-six samples from all parts of the country the following organisms were got :—

Streptococci alone	19,	or 52·8%
Staphylococci alone	5,	or 13·9%
B. coli alone	3,	or 8·3%

Mixed strepto and staphylo	6,	or 16·7%
Mixed staphylo and *B. coli*	2,	or 5·6%
Mixed all three	1,	or 2·8%

Four samples obtained from an outbreak in a herd by Mr. Orr, Kirkintilloch, showed a pure streptococcic infection in early cases, followed by an invasion of staphylococci, and a coli type of bacillus as the case progressed.

In a herd of about two hundred cows in milk several were affected with mammitis, and the disease was spreading. On our advice samples were obtained and a vaccine made from organisms isolated with which to vaccinate the healthy cows. Two inoculations were given at the interval of one week, and the outbreak was checked. This is one example of several similar cases.

2. *Strangles.*—In conjunction with Major A. Robb two outbreaks of strangles have been treated. The following gives details of one of these. Messrs. K. had a stud of about fifty draught horses. When called in Major Robb found three marked cases of strangles. A sample of pus was obtained from which a vaccine was made, and all healthy animals received an inoculation of it. Before the second inoculation was given three fresh horses showed enlarged submaxillary glands. These never developed abscess formation. The second inoculation was given, and though a few more showed temperature reaction, no further cases of the disease were observed. It will be noted that in both mammitis and strangles the organisms used in the preparation of the preventative vaccines were obtained from the outbreak.

Polyvalent vaccines can be used under similar circumstances, but the chances of success are not so great.

Consultation.—I do not propose to go into this point, as from what has already been said it will be obvious that assistance can be got by consultation. Let me just remind you that if the actual cause is not presented, a history is invaluable, also that if *post-mortem* work has to be done, it is essential that the subject be a typical one and alive.

Research into Diseases.—Before finishing I would like to take up a minute or two more of your patience discussing very briefly some small researches one has been able to do on Canine Distemper.

The purpose of these remarks is not to discuss the disease with you, but simply to make you acquainted with what one has been able to deduce from a little study done in leisure moments, and how the practitioner may derive benefit from such study.

That distemper is of paramount importance to the practitioner must be acknowledged, that much work still remains to be done before definite information is available is evidenced by the fact that several schools of thought exist at the present day as to its etiology, and that a real attempt is to be made to fathom its mysteries is obvious by the elaborate schemes of the Medical Research Council and the Distemper Field Fund. It is not within the scope of this paper to show the annual high mortality, and the immense amount of damage done, but simply to express opinions based on what one has found.

In all, twelve dogs have been used for bacteriological work, dogs in the various stages of the disease. Major Robb, Glasgow, and Major Andrew Spruell, Dundee, have supplied the cases. All dogs were destroyed for the work, and from each organisms identical with the *B. bronchisepticus* as isolated and described by Dr. Ferry have been isolated. In only three cases have the organisms been found in pure culture, viz., from the blood of one dog, from the pleural fluid of another and from the cerebro-spinal fluid of the third. All three cases were marked typical cases of the disease, though in the early stages. In all cases dealt with the bacillus has been found, and the following are the sites of infection: trachea, bronchi, substance of lung, pleural fluid, liver, brain, cerebro-spinal fluid and blood. The other organisms isolated in association with the *B. bronchisepticus* were streptococci, staphylococci and organisms of the coli group. The *B. bronchisepticus*, as isolated by me, corresponds in every detail with the culture which Dr. Ferry was kind enough to let me have. It will thus be seen that *B. bronchisepticus*, as far as one's experiences go, is a constant factor in cases of distemper. Having carefully perused Dr. Ferry's work and having agreed with much he found, some experimental work was carried out with the organism. It was shown to be pathogenic when inoculated intraperitoneally into guinea-pigs, producing death in 24—28 hours, and could be recovered from the various tissues of the animal. It showed only slight pathogenicity when inoculated subcutaneously. With dogs it showed little effect when introduced subcutaneously—only a slight œdematous swelling being produced even with large amounts; in fact, dogs so treated appeared to develop an immunity towards the natural infection. Thus a collie pup after receiving 1 c.c. of the pure living culture was exposed to natural infection fourteen days later, being kept among infected dogs in infected premises in Dundee for nearly a month. At no time did that pup even show the slightest sign of the disease, even when brought back to Glasgow and kept among the already-infected experimental dogs. The organism was injected into the nose of two pups in Glasgow, and both developed a heavy purulent catarrh with profuse lachrimation. One recovered, the other died, and the *post-mortem* examination showed typical pneumonic areas in the lungs with a hæmorrhagic pleural exudate, from which the organism was recovered. Two other pups were injected with a mixture of the *B. bronchisepticus*, and the other organisms found in association into the nasal cavity. Both showed a nasal discharge with lachrimation, and both recovered. The agglutinative power of the serum of affected and recovered dogs has been tested against the *B. bronchisepticus* as isolated in Glasgow. The results vary, agglutination occurring in dilution of serum from 1 in 80 up to 1 in 320.

Naturally, the object of this bit of work was to supply the practitioner with means of prevention and cure, and thus vaccines and sera have been made and experimented with.

Vaccines.—Three distinct vaccines have been made: (*a*) a dead vaccine made from all the organisms

isolated, (*a*) a sera vaccine made by sensitising the *B. bronchisepticus* to its antiserum, and (*c*) a vaccine containing attenuated live *B. bronchisepticus* and other organisms as above, but killed ; this vaccine has been used together with an antiserum. As far as one can gather from experimental tests carried out by various veterinarians, none of the vaccines prepared as above can be relied on to prevent distemper. There is certainly proof that protection is given, but such protection is not permanent. Thus twelve dogs were inoculated with the dead vaccine before being introduced into infected kennels where dogs were dying daily from distemper. Protection was given in that none showed the disease. Unfortunately the protection broke down some months later, and several succumbed to the disease. Best results are to be expected from the third type of vaccine as described above, and there is some evidence to show that too heavy a dose may actually produce a mild attack of distemper from which recovery is got with subsequent protection. It is hoped that this method of vaccination will be thoroughly tried out, and that suitable dosage may be arrived at to produce the maximum amount of protection without conferring the disease.

Serums.—The first serum was made in 1920-21, a horse from the Renfrewshire Kennels being placed at our disposal. The serum produced was entirely anti-bronchisepticus. Only a limited supply was obtained, but the results from its use were such that another horse was obtained and another anti-serum produced. This second anti-serum was made by using mostly *B. bronchisepticus*, but a mixture of other associated organisms in addition. Many doses of this anti-serum have been used by practitioners, and would appear to be of considerable value in the treatment of distemper cases. The general opinion formed is that, provided the case is got early before marked changes have occurred, the anti-serum is practically certain to effect a cure. The number of doses required depends entirely on the case, some only having received one dose, others requiring many more. Naturally in advanced cases or in cases complicated with chorea, little good results from its use. It is needless for me to give details of cases, as there must be many practitioners here who have used the anti-serum, and who can give you details much better than I can.

From the above work one is led to express the opinion that, though *B. bronchisepticus* may not be the actual cause of Canine Distemper, it is an extremely important factor in the course of the disease, and begins its pathogenic rôle very early. The other organisms isolated certainly play a part, but in a very high percentage of cases their effects are infinitesimal compared with those of the *B. bronchisepticus*. Further, if the effects of the *B. bronchisepticus* can be nullified early in the course of the disease, there is every reason to believe that an early and complete recovery will be got.

I have already acknowledged the debt that the laboratory worker owes to the practitioner. I trust I have created the impression that the practitioner does owe something to the laboratory worker, and that if they work hand in hand, the practitioner will derive a considerable amount of benefit from the results of such work.

Discussion.

Principal Whitehouse said that, in his opinion, Mr. Dalling's paper was the best he had heard at any of those meetings. He wished to know if polyvalent vaccines were much used in this country as a pre-operation measure to secure the safer healing of the operation wounds. He had seen good results from their use in America, and used in conjunction with the usual antiseptic treatment, he found that the stitches held better and were not so liable to suppurate out.

Mr. D. Campbell asked whether one was likely to get good recoveries in cases of mammitis from the use of vaccines.

Mr. Douglas said he had experience of Mr. Dalling's work in France, which was deserving of the highest praise. He regretted Mr. Dalling was leaving Glasgow, but felt sure we would hear much of him later on. He asked if Mr. Dalling had done anything with a form of mammitis occurring in yeld cows. Was it likely that vaccination before putting them to grass would prevent such attacks ?

Major Dunlop congratulated Mr. Dalling on his paper and his laboratory work. He would like to know if the cause of distemper was an ultravisible organism or the *Bacillus bronchisepticus*. In his opinion, in the treatment of mammitis, they were likely to get better results from the use of vaccines than anything else.

Mr. Peter Wilson, after thanking Mr. Dalling, said he had to acknowledge great help received from the bacteriologist in the treatment of many cases, and mammitis was one of the diseases of which this was true. Chronic cases responded most readily to vaccine treatment, and autogenous vaccines were to be preferred. Contagious mammitis could be cut short by the use of vaccines. The udder-clap cases, of which he had considerable experience, were in all instances due to bacilli of the coli type, and he thought it likely that infection came from the bowels. He related a case of ulcerative lymphangitis in a bull's hind leg in which the use of vaccine gave a marvellous result. He used strangles vaccine habitually as a preventive.

The Chairman here stated that the form of mammitis referred to by Mr. Douglas as occurring in yeld cows and by Mr. Wilson as udder-clap, due to the coli group of bacilli, was especially prevalent in the warm summer of 1918, and he felt convinced that the continuous high temperature of a large part of the grazing period had the effect of heightening the virulence of organisms that might not otherwise have been pathogenic. He suspected greatly the agency of flies coming to the gummy teats of the pregnant cows from putrid, decomposing material lying around.

Professor McCall, in congratulating Mr. Dalling, said that it seemed to him there was a feeling on the part of some of the veterinary research people to disassociate themselves altogether from the medical, and that this was much to be regretted. He had used many of Mr. Dalling's

products, and found them of great benefit in the treatment of acute febrile complaints. In distemper, the temperature often dropped immediately after the first injection, and it was said that deep-seated abscesses, such as in poll-evil, healed much more quickly under the use of vaccines.

Mr. REID said he had some experience of "bracken-poisoning," and asked if Mr. Dalling could hold out any hope as to its treatment.

Mr. NAIRN, another student, asked if septicæmia was likely to be helped by vaccines. He would have liked to hear something of the vaccine treatment of pneumonia.

Mr. STEWART remarked that he would like to know how the old method of taking a little synovia from the knee-joint of lambs suffering from joint-ill and using it as a vaccine acted.

Mr. ECCLES asked whether the essayist could tell them anything new regarding Stuttgart Disease.

Mr. MCFARLANE added his thanks to Mr. Dalling, and said it was his experience that deep-seated abscesses healed much better when the usual surgical treatment was aided by the use of polyvalent vaccine. He felt that lymphangitis and chronic thick-leg might be prevented by vaccine treatment, and if so, it would be a great boon to horses and horse-owners.

Mr. G. W. WEIR expressed the obligation of the division to Mr. Dalling for his interesting paper, and wished to say how much he had appreciated the work done by Mr. Dalling in Glasgow for the profession, and, though he was about to leave them, he hoped he would keep in touch and continue to help them as he had done. Many of his preparations he had used, especially for the treatment of distemper and interdigital abscesses. Vaccine in the latter case was of benefit in the early stages, and in chronic cases it helped, but was not a cure. The use of anti-distemper serum was much better practice than the old method of just treating symptoms as they appeared. It had, however, no effect on chorea. He had difficulty in following up some of his distemper cases owing to the expense of the serum, so that the treatment did not get a fair chance. He made a point of giving a good big dose to start with, and if possible a daily dose for a few days, and afterwards every second or third day.

Mr. BEGG, in expressing his appreciation of Mr. Dalling's paper, thanked him on behalf of the members of the division for the honour he had done them in electing to give some of the results of his laboratory work at that meeting of veterinary surgeons and students only. While he agreed that, though subacute and some chronic cases of mammitis were evidently improved by auto-vaccine treatment, he could not think it likely that forms of the disease which were at once virulent in type and rapidly infectious would be much benefitted by the use of vaccines, because the affected quarter was irretrievably damaged in a very few hours. He noted that Mr. Dalling, in referring to tuberculous mammitis, stated the generally accepted view that the strippings or last portion of the secretion from the affected quarter contained most bacilli. He wondered if Mr. Dalling had done any work himself in this connection, because when he, in conjunction with Dr. J. Hume Patterson, Bacteriologist for the County of Lanark, carried through some experiments ten years ago, it was found that the middle milk was richest in bacilli. The results were published in the Annual Report of the Medical Officer of Health. He regarded all forms of mammitis as potentially contagious, and was of opinion that the incidence of the disease could only be properly controlled when prophylactic treatment was based on this view.

THE REPLY.

In replying, Mr. DALLING thanked those present for the manner in which his paper had been received and for the amount of discussion that had taken place.

Referring to Dr. Whitehouse's question, he said that, as far as his experience went, it was a method not largely adopted in this country, but one which could be kept in mind for future work. He referred to the amount of discussion on mammitis, and agreed that vaccine treatment is not indicated in an acute case, though the one referred to benefitted by it. Vaccine treatment as a prophylactic where the disease was established in a herd certainly was beneficial. Enough work had not been done on mammitis to show whether the infection was generally from the teat or systemic. He quoted examples in which pure cultures of a *B. coli* type of organism had been isolated in outbreaks which were characterised by a high mortality among the affected animals. The question of vaccine treatment in deep-seated abscess formation was referred to, and it was shown that unless samples of pus could be obtained only polyvalent vaccines could be used, and their use was advocated under such conditions.

Referring to distemper, he gave it as his opinion that *B. bronchisepticus*, though an early invader, was probably not the actual cause, and his work tended to support the ultra-visible virus theory, though in early cases cures could be effected by annulling the pathogenic effects of the *B. bronchisepticus*.

Referring to Professor McCall's remarks on the co-operation of the Veterinary and Medical Professions, Mr. Dalling emphasised the fact that he was in entire sympathy with such co-operation, and insisted that research work could never attain its maximum in animal disease problems unless such co-operation existed.

Mr. STEWART'S point was dealt with, showing how a certain amount of benefit could be got by such treatment, further remarks being made on the curative results of the inoculation of similar preparations.

He had no experience of Stuttgart Disease and the use of a *B. bronchisepticus* vaccine.

Replying to the President, he said we must accept Mr. Begg's experiments in the question of middle milk being better than the last milk in the microscopic examination for *B. tuberculosis*, and alter our ideas because of such experimental proof. He doubted the question of a cow showing an agglutination at a low titre being normal as far as *B. abortus* (Bang) was considered.

Referring to Mr. Nairn's point, he asked permission of Dr. Whitehouse to give a short talk to the students on this point before leaving Glasgow.

At a meeting of the Highland and Agricultural Society, Dr. Tocher, consulting chemist, Aberdeen, reported that, as a result of preventive inoculation experiments, the mortality from the mysterious grass sickness among horses would be largely reduced by a process of immunisation in the early spring. The protective inoculating agent was a toxin anti-toxin mixture.

The cause of the disease is to be explored by workers with Sir Stewart Stockman at the head.

The Veterinary Record.

19th January, 1924.

National Veterinary Medical Association of Great Britain and Ireland, Limited.

EDITORIAL OFFICE: 10 Gray's Inn Square, London, W.C.1.

Cheques should be made payable and all communications sent to the General Secretary at the Offices of the Association, 10 Gray's Inn Square, London, W.C.1.

THE MINISTRY OF AGRICULTURE.

It is a pity that we are unable to publish *verbatim* the whole of Sir Stewart Stockman's speech which he made to the Council of the Association on January 9th. Much that he said was especially for the ears of veterinary surgeons, and would not be suitable for the public generally. The freedom from constraint which the opportunity afforded to him enabled him to deliver a truly remarkable and noteworthy address—an address which not only surpassed in lucidity any previous speech which we have heard him make, but also excelled in its frankness and humanity anything of the kind which has been made to our profession by any Government official. Those who were privileged to hear him will have obtained a much clearer vision of the true state of affairs and of the trials and tribulations of the veterinary staff of the Ministry of Agriculture, of the almost insurmountable difficulties to be overcome, of the patience and perseverance of the whole staff, and of the indomitable pluck and loyalty of Sir Stewart's subordinates. Those present at the meeting felt that they had more reason than ever to feel proud of their profession, and it was with very genuine feelings of sincerity that a vote of confidence in the sound judgment of the veterinary advisers to the Ministry was passed.

Sir Stewart showed himself to be broadminded and not to be working with fixed ideas which would admit of no argument. He emphasised the fact that the policy of the Ministry is neither slaughter nor isolation, but—eradication, and that up to the present slaughter has been the means adopted towards that end, solely because no better means is known to science to-day. That a better means may eventually be found is the devout wish of us all, for a time may arrive when the slaughter policy is no longer an economic one and the plague will become a national catastrophe.

We congratulate Sir Stewart Stockman on his address and for taking this opportunity of meeting a representative gathering of his profession. We wish he could have seen his way to do so at an earlier date. Such meetings and frank discussions do nothing but good; they disarm an amount of ill-advised criticism, they promote good feeling and understanding, and it cannot but be a help to the veterinary staff of the Ministry in the anxious and arduous work it is doing to know that it has the confidence and support of the Veterinary Profession at its back.

Our Critics and Advisers.

We feel that this is an opportune moment to draw attention to our own profession. Probably at no time during the life of the present generation has our profession stood in a more difficult position than it does now, and at no time has it suffered more from adverse criticism. If this criticism were fair and just, we could not complain, but it is neither fair nor just, and we can only speak in the terms of the highest praise for the forbearance and patience of our members under the flood of abuse and ill-conceived comment which has been appearing in the lay press. It is bad enough to have to remain silent when ignorant laymen, backed by even more ignorant editors, write of the want of knowledge of the veterinary surgeon and his inability to "treat," "cure," or "prevent" foot-and-mouth disease. Worst of all are the letters and articles which have appeared in the press from medical men. The extraordinary lack of knowledge displayed in these contributions is really remarkable, while many of the suggestions made to effect isolation or to prevent the spread of infection would shame a first year student or even an untrained hospital attendant. These gentlemen, if they have any scientific training and knowledge whatsoever, should have known better. "*Litera scripta manet*," and if these contributions by medical men on foot-and-mouth disease could be collected and published, they would remain for all time a memento of the folly and stupidity of which men may be capable when they write about subjects of which they have little or no understanding.

Our profession has patiently suffered not only many insults, but very serious financial loss, owing to this outbreak. Some farmers will not even have a veterinary surgeon on their premises lest he may carry the infection, and owing to the loss of stock and the "standstill" orders and the closing of markets, veterinary practice in many districts is at a standstill also. The public is supposed to be generous; can it not show a little generosity to our profession?

A Reflection Withdrawn.

Recently we drew attention to a most unfair attack upon us in another direction by the journal *The Justice of the Peace*. We are very pleased indeed to publish a full and ample apology from the editor of that paper, and we feel sure that the profession will accept its generous terms in the spirit in which it is offered. The original article was evidently written in error; but fewer of these errors would be made if the public knew more of our profession and the magnificent work it has done and is doing for both man and animal.

The Editor of the *Justice of the Peace* writes, in the issue of that paper dated December 22nd, 1923 :—

" Our attention has been drawn to a paragraph in an earlier article of this series, No. IV. at page 717 *ante*, in which a serious reflection was made concerning the evidence of veterinary surgeons. We apologise in the amplest way for the unjustifiable insertion of a reflection upon an honourable profession such as was made by our contributor. It in no way represents the views of this Journal, which holds the profession in the highest esteem. The appearance of the reflection was quite inadvertent."

As we go to press, we have received the deplorable information that Mr. George Howie, the indefatigable Secretary of the North of Scotland Division, has met with a fracture of the tibia, as the result of a kick sustained while stitching a wound. We shall be voicing the views of all our readers when we express to him our most sincere sympathy, and the earnest hope that he will make as speedy a recovery as the nature of his injury allows.

The accident is especially regrettable from the " National " point of view, as Mr. Howie is the man on whom, perhaps, we most rely for the successful carrying out of the arrangements for the Aberdeen Meeting.

Two boys of Cambuslang, Glasgow, are, says a recent issue of the *Daily Sketch*, supposed to have been infected with foot-and-mouth disease.

In one case a doctor found the boy suffering from a severe swelling of the tongue, which also showed signs of ulceration, and the doctor decided that it was foot-and-mouth disease. The boy is still being treated at home.

The symptoms are similar in the other boy.

It is stated that the first boy became ill after the family had eaten ox-tongue, but the doctors deny that this is a possible explanation.

Foot-and-mouth disease among human beings, a doctor stated, is exceedingly rare, and the Lanarkshire authorities have had no case officially reported to them.

Clinical Notes.

By Captain L. C. Maguire, F.R.C.V.S.,
Stow-on-the-Wold.

A valuable hunter mare, ten years old, was hunted by the owner's wife on the 13th December. There was a short run, chiefly over a stone wall country. Towards the end of the run the rider noticed the mare was not going in her usual form, so he pulled up and took her home.

During the homeward journey the mare exhibited a considerable amount of dullness, and, although she ate her food after getting home, the dullness continued all through the night and next day, towards the evening of which she commenced raising her hind legs towards the abdomen with jerky movements. As this animal never showed any signs of illness before, the owner did not take much notice of her condition, but instructed the groom to watch her during the night. The mare remained standing until about 4 o'clock on Sunday morning, when she was noticed by the attendant to stagger and fall down on her left side. She immediately made several attempts to regain her feet, but all she was able to accomplish was to raise herself on the fore feet and sit dog fashion. At 6 o'clock on Sunday morning I was called and saw the mare half an hour later. She was then lying prone on her left side and sweating profusely. At first sight I suspected azoturea, but an examination of the urine soon dispelled this suspicion. The next procedure was to put the mare in slings. Having slung her, it was discovered that the posterior limbs were completely paralysed.

Following a vigorous massage of the hind limbs, she was able to support herself after a short time, but immediately she moved all the joints of the hind limbs became flexed, which flexion she was quite unable to overcome, but when the legs were straightened, she was again able to support herself. At 10 a.m. on Sunday she ate a bran mash, and appeared perfectly comfortable until 6 p.m. of the same day. At this time she became restless, sat back in the slings, and refused to bear weight on her hind legs. The urine was examined several times during the day. It was more or less of a normal colour, but was thick and viscid. I tested it for albumen, which proved negative, for creatinin, which was negative, and for urea, which was also negative. The viscous condition was due to the large amount of mucin it contained. Catheterisation of the bladder every three hours yielded about three pints each time. The result of the urine examination puzzled me very much as to forming a diagnosis, for I naturally suspected, if it was a case of nephritis, that there would be albumen in the urine, and yet the total absence of urea seemed to point decisively to a complete functionless condition of the kidneys. I made a tentative diagnosis of kidney trouble, and accordingly based my treatment upon these lines.

As the patient persisted in sitting in the slings, and grew more restless, she was allowed down on a comfortable bed of straw. She remained quiet for

some time after being released from the slings, and then suddenly became very excited, throwing the head wildly about and making violent movements with the fore limbs, the hind ones being completely paralysed. The violence continued until 11 p.m., when she became comatose, and died at 2 a.m. on Monday. During the excitement she was given large doses of morphia without any effect.

Post-mortem examination revealed all the organs except the kidneys to be perfectly healthy. The latter showed acute congestive nephritis. The pelvis of the left kidney revealed large sub-mucous hæmorrhages, and the pelvis of the right one contained a small quantity of the same viscid liquid as that in the bladder. Examination of the urine *post-mortem* gave negative results for albumen and urea; the blood throughout the body was absolutely black in colour.

Now comes what, to me, seems the very interesting feature of the case. On opening the posterior vena cava, I found that it was completely filled with a dense fibrinous clot, which extended from just behind the anterior mesenteric branches to a little behind the level of the renal branches. Anterior and posterior to this the blood was fluid. Here was to be found an explanation of the intense congestive nephritis. Apparently the kidneys had completely lost their power to function, owing to the intense congestion and inflammation present, therefore the symptoms exhibited by the patient in the later stages were those of acute uræmic poisoning. Seemingly my diagnosis of nephritis was correct, for although the absence of albumen was against this, yet the absence of urea was the most dominant feature in its support. The question is: What was the pathological lesion which caused the clot? Could a sudden jar, while jumping, have injured the vessel, thereby causing the clot to form? Personally, I incline to this view.

The moral of this case is: When dealing with a suspected case of kidney trouble do not base your diagnosis on the presence or absence of albumen in the urine, rather concentrate your efforts on ascertaining the urea-excreting abilities of the kidneys, as the absence of the normal amount of urea excreted in a given time is highly indicative of some pathological condition of these organs.

Paralysis in Pigs due to Invasion of the Central Nervous System by the B. Suisepticus.

Sporadic cases of paralysis among pigs of this particular herd, which numbered about 800, have occurred from time to time for the last few months; the symptoms exhibited were gradual paralysis of the hind limbs, the paralysis gradually extending forward until the animal had lost use of all its legs. At this stage in the disease the pig was generally slaughtered. I was not consulted until the trouble appeared among a pen of gilts, which were being prepared for Smithfield Fat Stock Show. In this particular instance the disease was of an acute form, the infected animals showing all the symptoms of acute meningitis. One of these pigs was slaughtered, and the brain immediately exposed. Swabs were taken from the cerebrum, and the cerebellum, and from the spinal cord, at the level of the atlanto-axial articulation. A pig showing the chronic type was also slaughtered, and swabs taken from the same places as those of the first case.

Having obtained the swabs, the brain in each case was fully exposed. The brain of the pig suffering from the acute condition showed very severe congestion; the cerebro-spinal fluid was blood-stained. The brain of the second animal did not exhibit any naked-eye appearances of inflammation, with the exception that the cerebro-spinal fluid was turbid.

The swabs taken were sent for bacteriological examination.

Cultures made from these swabs gave the following results:—

Acute case.—Gave a growth of a small bi-polar staining gram-negative bacillus, *streptococcus brevis*, *B. aerogenes* and *B. pyococcus*.

Chronic case.—Gave a growth of a small bi-polar staining gram-negative bacillus.

In each case cultures made from the swabs taken from the spinal cord gave a negative result. From these findings it is thought that the chronic cases were caused by an infection of the central nervous system due to a not very virulent strain of the *B. suisepticus*, and that the acute cases were similarly caused by a microbial infection, chief among which being the streptococcus.

I find that, in this district, swine plague is very prevalent, but is easily controlled by vaccination, the double vaccine supplied by Messrs. Parke, Davis and Co. being highly effective.

A Suggestion as to a Probable Means of Controlling the Spread of Foot-and-Mouth Disease.

In human medicine three well-known diseases, all of which are caused by ultra visible viruses, are known to be spread through the agency of blood-sucking skin parasites.

The diseases to which I refer are typhus fever, spread by blood-sucking lice; plague, especially the bubonic type, spread by means of the rat flea; Rocky Mountain spotted fever, spread by a tick *dermacentor venustus*.

There is at least one analogy between two of the above diseases and foot-and-mouth disease, inasmuch as the causative factor in each is an ultra visible organism. Is it possible that blood-sucking lice and ticks of ruminants are capable of transmitting the infection from one animal to another? It is well known that, in the early stages of foot-and-mouth disease, the blood of the infected animal is highly virulent. It may be possible that lice and ticks sucking blood at this stage are capable of spreading infection to other susceptible animals, should any medium of control be afforded them. As a medium of control, one has only to observe the habits of birds,

(*Continued at foot of next column.*)

Divisional Report.

West of Scotland Division.*

A meeting of the West of Scotland Division of the National Veterinary Medical Association was held in the Grand Hotel, Glasgow, on 17th November, 1923, at 3.30 p.m., Mr. Hugh Begg, President, being in the chair. The following members were also present: Principal Whitehouse, Professor Mason, Mr. Thos. Dalling, of the A.D.R.A., Messrs. James McFarlane, W. Robb, R. Mitchell, and J. Wilson, Glasgow; P. Wilson, Lanark; D. Brown, Kilwinning; J. Taylor, Cathkin; A. Douglas, Ayr; D. Campbell, Rutherglen; and G. W. Weir, Secretary.

Visitors included Major J. J. Dunlop, Professor J. R. McCall, and nineteen senior students of the Glasgow Veterinary College.

The SECRETARY read the minutes of three meetings viz., that of date 11th April, 1923; joint meeting, with the Scottish Metropolitan Division at Edinburgh of date 20th October, 1923; and meeting of the West of Scotland Division held in Edinburgh on the same date.

On the motion of Mr. TAYLOR, it was agreed to delete a paragraph from the minutes of the meeting held on 11th April. The adoption of the minutes of the three meetings was then carried.

The SECRETARY read a letter from the Royal Sanitary Institute inviting the Division to send delegates to a meeting to be held in London in December. It was unanimously agreed that Mr. Dalling, who was about to take up his new duties in London, should represent the division if he found it convenient to attend. Mr. Dalling agreed to attend if possible, and report.

Mr. MCFARLANE proposed Major J. J. Dunlop as a new member, and the PRESIDENT seconded.

The President then called on Mr. Dalling to read his paper on "The Laboratory from the Veterinary Practitioner's Standpoint."

[Mr. Dalling's paper, together with the ensuing discussion, receives separate publication.—ED.].

The company then adjourned for high tea with the senior students, who were present as guests.

Thereafter Mr. BEGG proposed the health of Mr. Dalling, making suitable reference to the depth of esteem in which he was held in the West of Scotland as an unassuming and unostentatious research worker, and to the expectations that were held regarding his future career. He wished him success, health, and happiness in the important appointment on which he was about to enter in London. Professor MCCALL having also paid a tribute of praise and good wishes to Mr. Dalling, the company on the call of the PRESIDENT, toasted his health with musical honours, the students joining in with hearty goodwill.

Mr. DALLING replied in suitable and modest terms, and promised that if at any time he could be of any help to any member of the division or to any student he would be delighted. The company then re-adjourned to discuss Mr. Dalling's address.

A vote of thanks to the Chairman brought a most successful meeting to a close.

G. W. WEIR, *Hon. Secretary.*

(*Continued from previous page.*)

especially rooks and starlings, to discover it, for it is a very common sight to see these birds alighting on cattle and sheep and becoming busily engaged in searching for skin parasites. These birds may be the medium whereby lice or ticks from an infected animal may reach susceptible ones, for it is not only possible, but probable, that the birds, while in contact with cattle, may themselves become infected with lice from these animals.

Another feature of foot-and-mouth disease which is in favour of this theory is that animals which are housed seldom or never contract this disease. Should this theory in any way prove correct, a simple means of controlling the spread of the disease would be to have the skin parasites of all ruminants and pigs carefully destroyed by dipping or otherwise.

*Received on December 31st, 1923.

The Pan-Pacific Science Congress of 1923.

(*Continued from page* 14.)

The following programme will give a general idea of the deliberations of the Veterinary Science Section:—

MELBOURNE SESSION, 13th to 21st August, 1923.

Chairman, Professor Nitta, Tokyo University; Hon. Secretary, Professor H. A. Woodruff, M.R.C.V.S., M.R.C.S., L.R.C.P., University, Melbourne. (Tel. No. C.7143.)

Tuesday, 14th August.—10 a.m. to 1 p.m. Parasitological Problems in Veterinary Science and Zoology. (Joint meeting with Entomology and Zoology Sections.) Afternoon, Visit to Commonwealth Serum Institute.

Wednesday, 15th August.—10 a.m. to 1 p.m., Agricultural Education and Research. (Joint meeting with Agriculture Section.) Afternoon, Visit to Parks and Botanical Gardens.

Thursday, 16th August.—Morning, free. Afternoon, Excursions with other Sections. (Meeting of Australian Veterinary Association.)

Friday, 17th August.—10 a.m. to 5 p.m., Genetics, with special reference to the Improvement of Farm Animals. (Joint meeting with Agriculture and Zoology Sections.) 2 to 5 p.m., International Notification of Animal Diseases and Establishment of Department of Animal Health. (Joint meeting with Hygiene Section.)

Saturday and Sunday, 18th and 19th August.—Week-end Excursions with other Sections.

SYDNEY SESSION, 24th August to 1st September, 1923.

Chairman, Dr. Stanton Youngberg, of Manila, The Philippines; Secretary, Professor J. D. Stewart, The University of Sydney.

Friday, 24th August.—At Great Hall of the University, 10 a.m., Opening address by His Excellency the Governor, Sir Walter Davidson, followed by a general discussion on

"The Structure of the Pacific and its influence on Plant and Animal Life." Afternoon Session, 2 p.m., at the Veterinary School, "Some Helminthological Problems," by I. Clunnies Ross, B.V.Sc.; The "Development of Animal Industries in New Caledonia," by Mons. C. R. Campana, Delegate of the French Government. Evening, 8 p.m. Reception at Government House by His Excellency.

Saturday, 25th August.—Visit to the State Government Animal Diseases Experimental Station, by arrangement with Dr. Seddon, or to the Hawkesbury Agricultural College.

Monday, 27th August.—Morning Session at the Veterinary School, 10 a.m., "Piroplasmoses in the Pacific Regions," by Dr. Sydney Dodd; "Some Observations on the Non-Parasitic Stage of the Queensland Cattle Tick," by Dr. Harvey Johnston; "The Control of the Cattle Tick Pest," by Major C. J. Sanderson. Afternoon Session (in conjunction with Entomology Section), "Biology of Queensland Blow-flies," by Dr. Harvey Johnston; "Utilisation of Wasp Parasites to Control the Blow-fly," by Dr. Harvey Johnston.

Tuesday, 28th August.—Morning Session in Union Hall, 10 a.m. General Discussion on "Organisation of Scientific Work in the Pacific." Afternoon, Harbour Excursion. Evening, 7.30. Dinner at Paris House to Visiting Veterinary Scientists by the Veterinary Association of New South Wales.

Wednesday, 29th August.—Morning Session in Union Hall, 10 a.m. General Discussion on "Insects, their rôle and distribution in the Pacific." Afternoon Session, 2 p.m., at Medical School. Conjoint meeting with Hygiene and Entomology Sections on the "Distribution of Disease-carrying Insects."

Thursday, 30th August.—Morning Session in Organic Chemistry, Lecture Hall, 10 a.m. General Discussion on "Climate, its cause and relation to Social and Economic Conditions." Afternoon Session, 2 p.m., at Veterinary School, "Infectious Animal Diseases in Japan and their present situation," by Professor Naoschi Nitta; "Methods employed for the Control of Rinderpest in the Philippines," by Dr. Stanton Youngberg; "The Control of Contagious Pleuro-pneumonia of Bovines," by Lieut.-Colonel Max Henry; "The Evolution of the Horse," by Professor J. Cossar Ewart. Evening, 8 p.m. Conversazione at the University.

Friday, 31st August.—Morning Session in Organic Chemistry, Lecture Hall, 10 a.m. General Discussion on "The Settlement of Areas of Low Rainfall." Afternoon Session, 2 p.m., at the Veterinary School, conjoint meeting with Zoology and Entomology Sections, "The Protection of Native Fauna," by Mr. C. Hedley, F.L.S.; "Genetics as applied to Wool Production," by Professor A. F. Barker; "The Evolution of Wool-bearing Animals," by Professor J. Cossar Ewart.

Saturday, 1st September.—Visit to the Springmead Stud Farm and Camden Park Dairy Herds.

Of the numerous excursions arranged for oversea visitors those favoured by the Veterinary Scientists were the visit to the famous studs of dairy cattle in the Illawarra District and the tour through the North-Coast District, including visits to the Agricultural Experimental Station at Grafton and Wellongbar, as well as an inspection of the Cattle-Tick-infested area at Murwillumbah. These excursions proved not only very enjoyable, but were very instructive; they gave the members an opportunity of knowing each other more intimately as well as discussing informally the many problems connected with the breeding and rearing of animals and the marketing of dairy products.

At the General Meeting held at the completion of the Sectional Sessions the following recommendations, made by the Veterinary Science Section, were unanimously adopted:—

1. (a) That an International Bureau of Animal Health be established.

   (b) That all countries represented at the Pan-Pacific Science Congress forward to the Bureau a monthly notice of all outbreaks of contagious and infectious diseases of animals and an Annual Report of their personnel, activities, etc.

   (c) That the Bureau be a co-ordinating centre to transmit all such information to countries represented at the Pan-Pacific Science Congress monthly and annually as the case requires.

2. In view of the importance of the Animal Industries in the Pacific regions, it is recommended that greater encouragement be given to the study of animal genetics to improve the breeds of productive animals in the various countries.

3. (In conjunction with Zoology.)

   (a) That this Congress expresses its appreciation of the work already done by the Commonwealth and State Governments of Australia in protecting the unique native fauna of their territories.

   (b) That this Congress affirms the desirability of establishing further faunal sanctuaries in Pacific countries where interesting and valuable native animals are in danger of extinction.

4. In view of the increasing importance of the live stock industry in Papua and the Australian mandated territories, this Congress recommends that a veterinary survey of those regions be carried out by the Commonwealth Government under the direction of a veterinary bacteriologist experienced in the tropical diseases of animals. (This resolution if adopted to be sent to Commonwealth Government.)

It was also decided at the General Meeting that the Third Pan-Pacific Congress is to be held in Japan in 1926, and the various Sections have formed small committees to assure the success of the gathering. That appointed for Veterinary Science comprises Professor Naoshi Nitta, of Japan, Dr. Stanton Youngberg, of the Philippines, and Professor J. D. Stewart, of the University of Sydney. It would therefore appear that there exists every prospect of the high standard attained in Australia being well maintained in Japan, but the ultimate result must of necessity depend upon the support given by the veterinary scientific works in the Pacific regions, and it is hoped that those who did not have the opportunity of attending the second Pan-Pacific Congress will make every effort to be present at the third during 1926.

Notes and News.

The Editor will be glad to receive items of professional interest in these columns

Diary of Events.

Jan. 24th—N.V.M.A. Adjourned Meeting of Council (3-30); Committees—Appointments (12 noon); Articles of Association (2-0); Inspectors (follows Council). R.C.V.S. Special Meeting of Council (3-25).

Jan. 25th—Royal Counties Division Meeting at Reading, followed by Annual Dinner.

Feb. 8th—Midland Division, Annual General Meeting at Birmingham.

Wednesday, January 9th, was a very full day. Committee meetings were held at 11-30 a.m. and 2 p.m., and the Council sat at 3-30 p.m. It was considerably after 7 p.m. when it was agreed to adjourn the rest of the agenda for a fortnight. The Veterinary Inspectors Committee was also adjourned. The next Council Meeting will be on Thursday, January 24th, at 3-30 p.m., and on the same day will be meetings of the following three Committees: Appointments, Articles of Association, Veterinary Inspectors.

Ill-health kept away an old friend, Mr. F. G. Samson, who for some weeks has not been feeling well. At one time, an enthusiast, he seldom missed a meeting of the National, the Central or the Southern Counties. The same may be said of Mr. Salusbury Price, who, however, carries his years remarkably well, and can mount the stairs to the Library at the R.C.V.S. quite as well, if not better, than some of his juniors.

Two other absentees were very much missed, namely, Mr. Henry Sumner, the past president, who was detained at home with a bad cold, and Mr. Jack Willett, who was in bed with influenza. All their many friends will wish them a speedy recovery.

The Provisional Committee to make arrangements for the Congress at Aberdeen was duly appointed, and notices will shortly be issued calling the first meeting of the Committee, at Perth, at the end of January or beginning of February, on a day which the Scottish members will suggest as most suitable. This might be made a day of pleasant reunion amongst a number of Scotsmen, and we hope a large number of them will make a point of being present.

The General Secretary would be glad to receive suggestions as to the subjects to be discussed, the writers of papers, the openers of discussions, or to hear of any matter which either a division or an individual member wishes to bring forward at Aberdeen. With this material in hand it will be possible to make arrangements in good time and ensure a complete and varied programme. The men in the North of Scotland are determined that this next Congress is to be the best, or at least one of the best, that has ever been held.

Obituary.

Captain G. H. Bennet.

Our readers will share our very deep regret that the serious accident sustained by Captain G. H. Bennet, M.R.C.V.S., at Wolverhampton, on December 27th, has resulted in his death, after a prolonged period of unconsciousness. The following appeared in *The Times* of January 14th:

"Captain Bennet, not only a great rider among amateurs, but a great rider even when compared with the best professional horsemen, died yesterday morning as a result of a fall at Wolverhampton on December 27th. He was deservedly popular, not only with all regular followers of racing, but also with the general public, who knew that when he rode they would get a good run for their small investment. No one ever doubted his honesty, not even the man who had lost his money. No one ever doubted that if the horse could win Captain Bennet would win on it. His loss to racing is a very great one. I shall never see a braver or more plucky or more honest rider. His type are rare, and come only too seldom into the racing world, which is all the better for having known him. I give below some details of his career. We shall all miss him.

"Captain Bennet was born at East Barton, Bury St. Edmunds, only 29 years ago, and was a veterinary surgeon by profession, practising at Newmarket. He served throughout the war, both in France and in Egypt, and, while in the latter country, rode many races over hurdles and on the flat. When he returned to England after the war, he took up steeplechase riding and schooling horses in earnest, and soon became one of the foremost riders under National Hunt Rules.

"The greatest triumph of his career was his victory in the Grand National on Sergeant Murphy last year. He had already finished fourth on Turkey Buzzard, in 1921, and fifth on A Double Escape, in 1922.

"Captain Bennet was married last July to Miss Cicely Clayton Swan, daughter of Colonel and Mrs. R. Clayton Swan."

Colonel R. L. Cranford.

We deeply regret to announce the death at Elstead, Surrey, on the 23rd December, 1923, of Colonel R. L. Cranford, C.B.E., F.R.C.V.S., R.A.V.C. (retired).

Colonel Cranford was born at Dartmouth, Devon, on the 18th May, 1867. He graduated at the Royal Veterinary College, London, on 21st December, 1888. He received the diploma of F.R.C.V.S. in 1906.

He joined the Army Veterinary Department as Veterinary Lieutenant on 22nd October, 1890; was promoted Captain on 22nd October, 1900; and Major on 22nd October, 1905. He served at home until September, 1891, when he proceeded to India and served in that country until 1898, again proceeding to India in the October of the following year. He came home again in March, 1905, and remained on the Home Establishment until

February, 1910, when he again proceeded to India. He was on the Indian Establishment at the outbreak of the Great War, but being on leave in England his services were retained for European war service.

Until December, 1915, he was employed on the Headquarters of the Eastern Command, and on 1st January, 1916, was appointed A.D.V.S. London District, being granted the temporary rank of Lieut.-Colonel. In September, 1917, he became A.D.V.S. Southern Army, Brentwood. He proceeded to France for duty with the Expeditionary Force in December, 1917, and was attached for duty with the D.D.V.S. Southern. On 17th February, 1918, he was appointed D.D.V.S. Lines of Communication, Northern, and was granted the temporary rank of Colonel. In May, 1918, he was appointed D.D.V.S. 5th Army, until he was invalided in February, 1919, relinquishing the temporary rank of Colonel on 25th February, 1919. He subsequently proceeded to the Rhine Forces, where he was appointed A.D.V.S. X Corps on 7th June, 1919. He returned to U.K. in November, 1919, and was appointed A.D.V.S. Irish Command on 17th November, 1919, On 7th September, 1920, he proceeded to York, and was appointed A.D.V.S. Northern Command. He retired on retired pay on 10th March, 1922, and was granted the rank of Colonel.

For his services in the Great War he was twice mentioned in despatches and received the C.B.E.; he was also awarded the General Service and Victory Medals.

He also took part in the campaign on the N.W. Frontier of India in 1897-98, and received the medal for this campaign with clasp.

Colonel Cranford was popular with both officers and men. He was a widower, and leaves two sons still in their teens, for whom we have the greatest sympathy.

Cattle Plague and Contagious Abortion.

Several interesting records of research work reach us, says *The British Medical Journal*, from time to time from India, and we have before us two studies by the Veterinary Department of the Department of Agriculture in India—one on rinderpest by W. A. Pool and T. M. Doyle of the Imperial Bacteriological Laboratory, Muktesar, and the other on the etiology of equine contagious abortion by the latter observer. The results of the study on rinderpest go to show that the immunity conferred by preventive inoculations of anti-rinderpest serum alone, even when double, treble, or more doses are given, has been overestimated and at times grossly exaggerated. It is, in fact of comparatively short duration; and the general conclusions drawn by Pool and Doyle from their experiments are that a single dose of the serum confers a passive immunity for nine days only, and that increased doses prolong the immunity but not in proportion to the increase. This passive immunity is an artificial condition by which the severity of an attack of rinderpest is lessened, but which does not prevent invasion by the virus of rinderpest. In order, therefore, to stamp out the disease in herds the veterinary officers in India advocate inoculation with anti-rinderpest serum simultaneously with a dose of the active virus. The effect of this 'serum simultaneous method" of inoculation, as it is called, is to confer active immunity for long periods. The mortality in this method should not exceed 1 per cent. Inoculations with serum alone are insufficient to prevent infection, and the immunity conferred by them rapidly disappears. In his study on the etiology of equine contagious abortion, a disease which has attracted a great deal of attention both in Europe and America during the last ten years, Doyle points out that it is probably widely spread in parts of India, notably in Northern India. He undertook a series of investigations to determine the etiology of the disease, and to discover whether the causal organism was the same in India as in Europe and America. His experiments showed that the causal agent is the *Bacillus abortivo-equinus* in the case of outbreaks of specific abortion in India both amongst pony and donkey mares, and is identical in all particulars with that described by European and American observers. It was capable of producing abortion by intravenous, alimentary, and intravaginal infection. These and other research studies are printed and published for the Imperial Department of Agriculture in India and the Agricultural Research Institute, Pasa, and may be obtained from Messrs. Thacker, Spink and Co., Calcutta, or Messrs. Thacker and Co., London, for a small sum.

Electrical Meat De-Frosting Process.

"Considerable interest," says the *Butchers' Advocate*, "has been aroused in Smithfield Market and elsewhere by a new electrical invention for de-freezing meat known as the 'Alcock-Wagstaff' which was demonstrated recently at the premises of the Stockbreeders Meat Co., Ltd., 381 Central Markets, in the presence of a large number of prominent men connected with the meat industry.

"Interviewed by a representative of this journal after the demonstration, the inventor, Mr. Alfred N. Alcock, M.I.E.E., said, 'My claims for this invention are that it will take the Australian meat and revive the bloom, that is, the external appearance of the meat, so that it is practically equal to chilled meat. The drawback with the frozen meat hitherto has been the difficulty of thawing it out properly, which takes from three to four days, and even then, although the meat may be thoroughly thawed, the appearance, due to the deposit of moisture on the surface, is very detrimental to its sale compared with the chilled article, which will realise on the market from 2d. to 3d. per lb. more. My invention has been developed in Melbourne during the last few years, and a number of experiments have been carried out to simplify the method so that any small butcher can have an installation which is not in any way more complicated than his electric lighting service installation.

"'The principle of the invention is to pass an alternating current of electricity through the meat, the effect of which is to prevent the decomposition of moisture on the surface while the action of the atmosphere is doing the work of thawing. The amount of energy needed in the process of thawing a hind quarter of beef is approximately three units, and a carcase of mutton, about half to one unit, according to weight. In experiments carried out in Australia with electrical energy supplied at 2½d. per unit, the cost approximated 0·03 of 1d. per lb. of thawed meat.

"'Another important point in the thawing is that the loss of weight is very slight, which represents a big factor to the butcher. Two demonstrations have been carried out in London up to the present, one here in Smithfield, and one previously at 3 Melbourne Place, opposite Australia House. The general opinion of those present at the first demonstration was that the process was the best that has been submitted in this country. I will not make any mention of the verdict recorded at the present demonstration; I will leave that for you to ascertain for yourself.'"

Colonel T. D. Young, M.R.C.V.S., Veterinary Inspector for the City of London, seen by our representative, and asked for an expression of opinion of the demonstration, remarked, 'Of all the de-freezing processes I have seen tried in the market, this appears to be the most successful, but, of course, only one hind-quarter has been tested.'"

Correspondence.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.
All correspondence must bear the name and address of the contributor for publication.
The Editor does not hold himself responsible for the opinions of his correspondents.

Epizootic—not Epidemic.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—In the course of numerous articles concerning foot-and-mouth disease, I have recently noted with surprise how frequently the mistake is made of referring to the disease as being of an *epidemic or endemic* nature.

When referring to this disease, which is a disease of animals, why not let us use the word *epizootic* or *enzootic*, as the case may be?—Yours, etc., D. BUCHANAN, M.R.C.V.S., D.V.S.M., 91 Westbourne Road, Claughton, Birkenhead.

30*th December*, 1923.

Fees under the Contagious Diseases of Animal Acts.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—I am sure Mr. Trevor Spencer will accept my word when I say I had no desire to tread upon his susceptibilities and much iess to belittle his work in connection with the N.V.I.A. Nothing was further from my thoughts. Furthermore, I think it is just possible that, upon reflection, he may be inclined to be a little grateful, for it has given him an opportunity to defend his association, and what perhaps is more important, it has afforded him a chance to make certain observations on its work which, I venture to think, was unknown to a large percentage of the profession. What we, as a body, want is uniformity of fees and a scale commensurate with the skill and ability required for carrying out our duties under the Animal Diseases Acts. The National is now the body to bring this about, but it must have the whole profession at its back. This can only be acquired by every practitioner becoming a member. Herein there is another plea for every member to join the National.

To those who are not members might I suggest this step as one of their "New Year" resolutions?—I am, Sir, yours faithfully, WM. SCOTT, Friarn House, Bridgwater.

29*th December*, 1923.

Foot-and-Mouth Disease.

AN INDICATION OF SCOTTISH LAY OPINION.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—At the Annual Conference of the Scottish Chamber of Agriculture, held in Edinburgh, Professor J. Russell Greig delivered an address on the Introduction and Spread of Foot-and-Mouth Disease.

He pointed out that an animal which had recovered from an attack of the disease was capable of remaining infective for a period of six months; a fact which was not appreciated by those who agitated for a policy of isolation in place of the policy of slaughter now in force.

At the conclusion of his address Professor Greig stated that much useless and foolish criticism had been levelled at the Veterinary Staff of the Ministry of Agriculture in their efforts to control and exterminate the disease, and gave it as his considered opinion that the present policy of slaughter was justified up to the hilt.

That this statement was received, not only without dissent, but with unanimous and warm approval is significant, since the Scottish Chamber is a powerful and influential body, which represents the leading agricultural opinion in the country. It would, therefore, appear that lay opinion in Scotland is in sharp contrast to that which obtains in certain agricultural circles south of the Tweed.

During the last epizootic of foot-and-mouth disease I had experience of two outbreaks in which, because of their position, isolation was practised.

The results of these two cases were disastrous in so far as there was marked depreciation in the value of the affected cattle, and high mortality in the sheep and lambs, while infection was carried to other and clean premises.

If stockowners realised what isolation means, they would cease their clamour against the policy of slaughter with compensation.—Yours faithfully, WILLIAM LOTHIAN.

31*st December*, 1923.

A Correction.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—In the *Veterinary Record* of December 29th, 1923, under the column "Notes and News," I observe that you have reported that "Mr. J. H. Stewart, M.C., has taken a colonial appointment in East Africa."

As I am the only individual on the register of veterinary surgeons for 1923 who answers to the description, I presume it was intended for me.

I may say that, unfortunately, you have been misinformed, as I have not accepted any such appointment; I never had and have no intention of doing so.

The report was a great surprise to me, and has caused some little annoyance.

I shall be glad if you will contradict same at the earliest opportunity.—Yours faithfully, J. H. STEWART, 14 Neville Street, Cardiff.

9*th January*, 1924.

The Editor begs to acknowledge the receipt of the following:

Communications from Messrs. G. Ellis, W. E. Howell, G. Mayall, Major A. A. Pryer, Messrs. P. J. Simpson, W. L. Richardson, A. L. Robertson, and J. C. Ross.

Report of a meeting of the Eastern Counties Division, from Mr. W. Shipley, Hon. Secretary.

BOTULISM

is the term applied to an intoxication produced by the toxin of Bacillus Botulinus, Types A and B. The symptom-complex of botulinus poisoning in domestic animals is identical with a number of conditions frequently observed in horses, cattle, sheep, and often referred to as

Grass Disease
Borna Disease
Forage Poisoning
Blind Staggers
Cerebro-Spinal Meningitis

The Bacillus Botulinus is found in the soil, on hay, grain and forages and in stagnant water. Intoxication usually takes place through the digestive tract from consuming food or water containing the toxin elaborated by the growth of the organism outside the animal body.

JEN-SAL
POLYVALENT BOTULINUS ANTITOXIN

Prepared under U.S. Government License No. 107 is indicated as a prophylactic and curative measure (Standardized in antitoxic units). It is a 100% prophylactic product.

Offered in 40 and 200 mil bottles.

Distributing Agents for the United Kingdom:

WILLOWS, FRANCIS, BUTLER & THOMPSON, LTD.,

40 ALDERSGATE STREET, E.C.